

CLAIMS

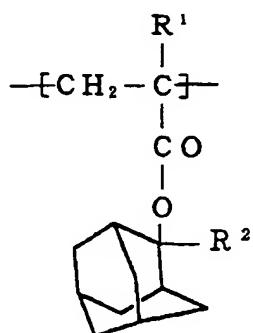
1. A composition for formation of an antireflection film prepared by dissolving, in an organic solvent, (A) a ladder-type silicone copolymer consisting of (a₁) 10-90% by moles of (hydroxyphenylalkyl)silsesquioxane units, (a₂) 0-50% by moles of (alkoxyphenylalkyl)silsesquioxane units and (a₃) 10-90% by moles of alkyl- or phenylsilsesquioxane units, (B) an acid-generating agent capable of generating an acid by heat or light and (C) a crosslinking agent and having a characteristic to be capable of forming an antireflection film of which the optical parameter (k value) relative to ArF lasers is in the range of 0.002-0.95.

2. The composition for formation of an antireflection film described in Claim 1 which further contains (D) a linear polymer in addition to the component (A), component (B) and component (C).

3. The composition for formation of an antireflection film described in Claim 2 in which the said (D) linear polymer is a polymer containing hydroxyl group-containing (meth)acrylic acid ester units.

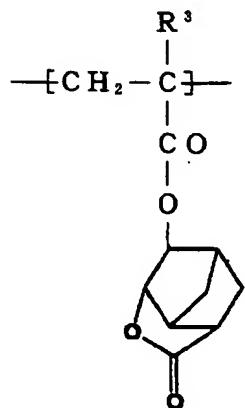
4. The composition for formation of an antireflection film described in Claim 3 in which the said (D) linear polymer is a polymer containing (meth)acrylic acid ester units having hydroxyl group-containing aliphatic polycyclic groups.

5. The composition for formation of an antireflection film described in Claim 3 in which the said (D) linear polymer is a linear copolymer consisting of 10-60% by moles of the constituent units (d₁) represented by the general formula,

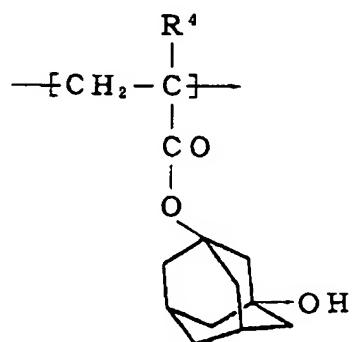


(In the formula, R¹ is a hydrogen atom or a methyl group and R² is an alkyl group),

30-80% by moles of the constituent units (d₂) represented by the general formula,



(R³ in the formula is a hydrogen atom or a methyl group) and
10-50% by moles of the constituent units (d₃) represented by the general formula,



(R⁴ in the formula is a hydrogen atom or a methyl group).

6. A ladder-type silicone copolymer which contains (hydroxyphenylalkyl)silsesquioxane units and alkylsilsesquioxane units.
7. The ladder-type silicone copolymer described in Claim 6 in which the compounding proportion of the (hydroxyphenylalkyl)silsesquioxane units and the alkylsilsesquioxane units is from 10:90 to 90:10 in the molar ratio.
8. The ladder-type silicone copolymer described in Claim 6 of which the mass-average molecular weight is 1500-30000.

9. The ladder-type silicone copolymer described in Claim 6 of which the molecular weight dispersion is in the range of 1.0-5.0.